

# Using Profiles with Cisco 700 Series Routers

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A profile is a set of configuration parameters associated with ports on the router or WAN devices.

This chapter contains the following sections:

- Profile Overview
- System and Profile Parameters
- Creating and Modifying Profiles
- Incoming Calls
- Outgoing Calls

## Profile Overview

There are two modes in which you can set parameters, the system mode and the profile mode. System mode parameters affect the configuration on a global level. Profiles are sets of local parameters. Profile mode parameters affect how the router handles the connection to a device.

You do not have to reconfigure the router every time you connect to a different device. Instead of using one set of configuration parameters for all devices, you can use different profiles to communicate with a variety of devices.

For example, you can create a user-defined profile called 2500 that contains the parameters to be used when communicating with a Cisco 2500 series router over the WAN. You can customize your Cisco 700 series router to maintain up to 17 user-defined profiles. Profiles are saved in the Cisco 700 series router nonvolatile RAM (NVRAM).

## System and Profile Parameters

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In addition to user-defined profiles, there are three permanent profiles, Internal, LAN, and Standard. The Internal profile stores parameters used to communicate between the LAN and WAN ports on the Cisco 700 series router. The LAN profile stores parameters that configure the LAN port on the router. The Standard profile is the default profile. If authentication is not required and the destination device you are connecting to does not have a user-defined profile, the router uses the Standard profile.

## Profiles and Connections

Profiles are either active or inactive. An active profile creates a *virtual connection* to the remote device associated with the profile. A virtual connection is a connection without physical channels. After creating a virtual connection, an on-demand call can be made to the associated remote device to establish a *physical connection*.

A physical connection is a dynamically created pipeline of packets from the Cisco 700 series router to a switch on the WAN. All connections are associated with the profile that defines the configuration of the connection.

Virtual and physical connections behave similarly; the difference is that physical connections forward packets to the WAN. Virtual connections monitor packet traffic on the LAN until a demand filter “sees” that a packet is destined for the WAN and initiates a call to the switch, opening the physical connection. Once the call is established, the virtual connection becomes an active physical connection, and the packets move through the pipeline.

## System and Profile Parameters

The system is composed of both system mode parameters, user-defined profiles, and permanent profiles. System mode parameters can be changed only in system mode. The prompt indicates you are in system mode by displaying nothing or the router name. An example of the prompt is shown below:

```
Router_name>
```

If you are in profile mode, the profile name appears on the prompt, separated from the system name by a colon (:). An example of the prompt is shown below:

```
Router_name:Profile>
```

All profiles are based on the profile template and inherit the system-level values. When you create a new profile, its default values are taken from the profile template.

## System Mode Parameter Set

System mode parameters affect the router as a system. Table 2-1 lists the system parameters.

**Table 2-1      System Parameter Set**

Caller ID parameters	Call waiting	PPP <sup>1</sup> parameters
Date and time	Country group	Screen length
Directory number(s)	Address age time	Screen echo
Delay time	Local and remote access	SNMP <sup>2</sup> parameters
Forwarding mode	Phone 1 and 2	SPIDs <sup>3</sup>
Multidestination dialing	PPP client password	Switch type
Numbering plan	PPP client secret	System password
Patterns	Voice priority	Power Source 1 detect
Passthru	Compression	System name
PPP authentication		

1    PPP = Point-to-Point Protocol

2    SNMP = Simple Network Management Protocol

3    SPID = service profile identifier

## Profile Mode Parameter Set

Changes made to profile mode parameters in system mode affect the profile template. When a profile is created, it inherits the matching system mode parameters from the profile template. Any changes to parameters in profile mode apply only to that profile. Changes made to profile parameters in system mode are stored in the profile template. When you use the **set user** command to create a user-defined profile, the default parameters for the new profile are taken from system mode.

## System and Profile Parameters

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Table 2-2 lists the parameters that can be configured in a profile.

**Table 2-2      Profile Parameters**

Bridging	Line speed	PPP authentication (outgoing)
Ringback number	Auto calling	All IP parameters, including filters
Passthrough	Demand	PAP password (client and host)
Learning	Timeout	All IPX parameters, including filters
Subnet mask	Called number	CHAP secret (client and host)
Protocol	Encapsulation	Bridge filters (address, type, and user-defined)
Loopback		

## Permanent Profiles

Cisco 700 series routers contain three permanent profiles. Permanent profiles can be modified, but they cannot be deleted. The permanent profiles are as follows:

LAN	Determines how data is passed from the router to the LAN. This profile is commonly used for connections made directly to the local network.
Internal	Determines how data is passed between the bridge engine and the IP/IPX router.
Standard	The default profile. If authentication is set to none and a profile does not exist for the WAN switch, the router uses the Standard profile by default. If authentication is required and no profile is found, the call is dropped.

The decision to use the LAN or Internal profile involves some knowledge of your network design and whether you are bridging or routing to remote sites (or a combination of both). It is best to use the LAN profile instead of the Internal profile to simplify the configuration. You can easily associate the LAN profile with the Ethernet interface and the user-defined profiles with the ISDN interface.

Sometimes situations arise (very infrequent) where you must route a protocol to one site and bridge the *same* protocol to another site. Simply leave the LAN profile as a bridging profile, and use the Internal profile for all routed protocol information.

## Creating and Modifying Profiles

A new profile is created with the **set user** command. When you create a new profile, you automatically enter profile mode for that profile. The following example creates a user profile called tomr. Enter the **set user** command to create a profile using the profile template for the default values of the parameters, as follows:

```
Host> set user tomr
Host:tomr>
```

Notice that the profile mode is indicated by the prompt, which appears as the system name *and* the profile name, separated by a colon. While this prompt is displayed, modifications to the parameters only affect the parameters in the profile. The changes do not affect system mode parameters or other profiles.

The **cd** command is used to change to system mode or to another profile. Following is an example of the **cd** command used to change to a permanent profile called LAN:

```
Router_name> cd LAN
Router_name:LAN>
```

Note that the prompt includes the name of the profile. You can now modify the LAN profile parameters.

## Displaying Profile Configurations

The **show** commands display the values associated with a profile parameter in profile mode. The commands work in system mode to show the values associated with parameters in the profile template.

In profile mode, some **show** commands only display profile parameters. Parameter values that have been redefined in profile mode are indicated with a <\*>. All other parameter values are inherited from the profile template.

## Removing Profile-Based Values

You can remove any parameter value within a profile with the **unset** command. The parameter you removed inherits its value from the system mode.

## Incoming Calls

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In the following example, the profile parameter number is removed from the profile by using the **unset** command:

```
Host:Profile> unset number
```

## Deleting Profiles

The **reset user** command deletes a user-defined profile from the router. The three permanent profiles (LAN, Internal, and Standard) cannot be deleted. This command also closes any connection associated with the profile.

In the following example, the tomr profile is removed from the system by using the **reset user** command:

```
Host:Profile> reset user tomr
```

## Changing Profile Names

The **set profile user** command changes the name of an existing profile. Enter this command while in profile mode for the profile you want to affect. In the following example, the profile name is being changed from 2500 to 4500:

```
766:2500> set profile user 4500  
766:4500>
```

## Incoming Calls

When the router receives an incoming call, the router searches both active and inactive profiles for a profile with the same name as the calling device. If it finds a profile with the matching user ID, the router uses the configuration parameters of that profile while communicating with the remote device. If the profile is inactive, it is automatically activated for the duration of the connection.

When the call is finished, the physical link between the two devices is disconnected. However, the virtual connection to the remote router might be configured to remain active.

If the profile is configured to remain active after a link disconnects, a virtual connection remains. The virtual connection monitors the LAN traffic. If packets destined for the WAN are detected, the router opens up the physical connection and forwards the packets.

If the profile is configured to become inactive after a link disconnects, both the physical link and the virtual connection to the remote router are disconnected until another call is received from the same remote router.

## Outgoing Calls

Outgoing calls require that the associated user-defined profiles be set to active, that the **set auto** command be on, and that a phone number to call be stored in the profile. If the profile is inactive, a number to dial is not available to the router.

## Outgoing Calls

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